

What is Claimed is:

1. A method executed in a computer system for automatically tracking platform usage comprising:

5 recording one or more records of platform information for a plurality of program executions, each of said one or more records of platform information corresponding to one of said plurality of program executions; and  
summarizing data related to said one or more records of platform information to assess platform usage.

10 2. The method of Claim 1, wherein each of said one or more records of platform information includes software component data and system configuration data.

3. The method of Claim 2, wherein said system configuration data includes hardware data and software settings describing an environment of a computer system in  
15 which a program is executed.

4. The method of Claim 2, wherein at least a first portion of the software component data corresponds to a software component that is a shared library.

20 5. The method of Claim 4, wherein the shared library is one of a dynamic link library and an ActiveX Control library.

6. The method of Claim 2, wherein the system configuration information includes data describing at least one of: a number of processors in a particular platform, a system name, an indicator as to a hardware processor type, an operating system identifier, an amount of physical memory, and an identifier for each program execution associated with said system configuration information being described.

7. The method of Claim 1, further including performing one or more routine calls using a function provided by an operating system to gather a portion of at least one of the records of platform information.

8. The method of Claim 1, further comprising:  
obtaining software component data using an event reporting mechanism that reports information to a monitor process.

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9. The method of Claim 1, further including:

linking a program to be tested to include monitoring; and

reporting software component data at runtime to a monitor process by monitoring predetermined calls made from a portion of a program being executed.

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10. The method of Claim 9, wherein the calls being monitored are in user supplied code.

11. The method of Claim 10, wherein the program being executed includes a software component directly invoked from a portion of user supplied code.

12. The method of Claim 10, wherein the program being executed includes at least one software component that is not directly invoked from a portion of user supplied code.

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13. The method of Claim 2, further including:

recording, for each platform, software component data associated with each software component included in said each platform, said software component data includes information uniquely identifying said each software component.

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14. The method of Claim 13, wherein said software component data includes at least one of a module name, a link date, a file version, a file size, and a product version.

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15. The method of Claim 13, wherein said software component information includes data indicating one or more of said plurality of program executions that are

associated with a first software component corresponding to said software component information.

16. The method of Claim 1, further including:

5       forming a set union of said one or more records of platform information to identify each unique platform.

17. The method of Claim 16, wherein each of said one or more records of platform information includes software component data and system configuration data,

10       and the method further includes:

          forming an initial union set that includes a first record of platform information;

          determining for a second record of platform information if there are differences in system configuration data associated with said first and second records of platform information;

15       determining for said second record of platform information if there are differences in software component data associated with said first and second records of platform information; and

          adding said second record of platform information to said initial union set if any differences are determined in system configuration data or software component data.

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18. The method of Claim 17, wherein determining differences in software component data includes:

determining differences in named software modules associated with said first and second records of platform information; and

5 determining differences in attributes of a first named software module included in said first and said second records of platform information.

19. The method of Claim 1, wherein said data includes code coverage data associated with said each of said plurality of program executions, and further includes:

10 determining one or more of said plurality of program executions having code coverage data;

determining a first record of platform information for which code coverage is being assessed;

performing a set intersection operation between said first record of platform information and said one or more records of platform information to form a resulting set of program executions associated with said set intersection operation, each program execution included in said set of one or more program executions corresponding to one of said one or more records of platform information that is similar to said first record of platform information; and

20 merging said code coverage data associated with each program execution included in said resulting set of program executions.

20. The method of Claim 1, wherein said data includes code coverage data associated with said each of said plurality of program executions, and further includes:

determining one or more program executions having code coverage data;

determining first criteria;

5 determining a first portion of said plurality of program executions in accordance with said first criteria; and

merging said code coverage data associated with each program execution included in said first portion.

10 21. The method of Claim 1, wherein each of said one or more records of platform information includes software component data and system configuration data, and the method further includes:

identifying a version of a software module;

15 determining a portion of said plurality of program executions associated with said version of said software module using said each of said one or more records of platform information; and

identifying first system configuration data associated with a first program execution included in said portion; and

20 identifying a computer system included in said first system configuration data.

22. The method of Claim 1, further including:

determining a set of unique platform information that includes each record of platform information uniquely identifying a platform;

determining a target platform information record; and

5 determining a record included in said set of unique platform information that most closely matches said target platform information record.

23. The method of Claim 22, further comprising:

identifying a computer system included in said target platform information

10 that matches one of said records included in said set of unique platform information.

24. The method of Claim 1, wherein said one or more sets of platform information are stored in an object-oriented database in accordance with a database schema.

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25. A method executed in a computer system for automatically tracking platform coverage comprising:

recording one or more records of platform information for a plurality of program executions, each of said one or more records of platform information  
20 corresponding to one of said plurality of program executions; and

summarizing data related to said one or more records of platform information  
to assess the effectiveness of platform coverage.

26. The method of Claim 25, wherein said data includes code coverage data  
5 associated with said each of said plurality of program executions, and further includes:
- determining one or more program executions having code coverage data;
  - determining a first record of platform information for which code coverage is  
being assessed;
  - performing a set intersection operation between said first record of platform  
10 information and said one or more records of platform information to form a resulting set  
of program executions, each program execution included in said set of one or more  
program executions corresponding to one of said one or more records of platform  
information that is similar to said first record of platform information; and
  - merging said code coverage data associated with each program execution  
15 included in said resulting set of program executions.

27. The method of Claim 25, wherein said data includes code coverage data  
associated with said each of said plurality of program executions, and further includes:
- determining one or more program executions having code coverage data;
  - 20 determining first criteria;



determining a first portion of said plurality of program executions in accordance with said first criteria; and

merging said code coverage data associated with said each program execution included in said first portion.

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28. The method of Claim 25 further including:

recording a one or more records of platform information corresponding to a bug report; and

identifying a first of said one or more records of platform information for a  
10 plurality of program executions wherein said first record identifies a platform that corresponds to a platform associated with said bug report.

29. A computer program product for tracking platform usage comprising:

machine executable code for recording one or more records of platform  
15 information for a plurality of program executions, each of said one or more records of platform information corresponding to one of said plurality of program executions; and

machine executable code for summarizing data related to said one or more records of platform information to assess platform usage.

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30. The computer program product of Claim 29, wherein each of said one or more records of platform information includes software component data and system configuration data.

5           31. The computer program product of Claim 30, wherein said system configuration data includes hardware data and software settings describing an environment of a computer system in which a program is executed.

          32. The computer program product of Claim 30, wherein at least a first portion of the software component data corresponds to a software component that  
10       is a shared library.

          33. The computer program product of Claim 30, wherein said system configuration information includes data describing at least one of: a number of processors in a particular platform, a system name, an indicator as to a hardware  
15       processor type, an operating system identifier, an amount of physical memory, and an identifier for each program execution associated with said system configuration information being described.

          34. The computer program product of Claim 29, further including machine  
20       executable code for performing one or more routine calls using a function provided by an operating system to gather a portion of at least one of the records of platform.

35. The computer program product of Claim 29 further comprising:

machine executable code for obtaining software component data using an event reporting mechanism that reports information to a monitor process.

5        36. The computer program product of Claim 29, further including:

machine executable code for linking a program to be tested to include monitoring;

and

machine executable code for reporting software component data at runtime to a monitor process by monitoring predetermined calls made from a portion of a program

10    being executed.

37. The computer program product of Claim 36, wherein the calls being monitored are in user supplied code.

38. The computer program product of Claim 37, wherein the program being  
15    executed includes a software component directly invoked from a portion of user supplied code.

39. The computer program product of Claim 37, wherein the program being  
executed includes at least one software component that is not directly invoked from a  
20    portion of user supplied code.

40. The computer program product of Claim 30, further including:

machine executable code for recording, for each platform, software component data associated with each software component included in said each platform, said software component data includes information uniquely identifying said each software component.

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41. The computer program product of Claim 40, wherein said software

component data includes at least one of a module name, a link date, a file version, and a product version.

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42. The computer program product of Claim 40, wherein said software

component information includes data indicating one or more of said plurality of program executions that are associated with a first software component corresponding to said software component information.

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43. The computer program product of Claim 29, further comprising:

machine executable code for forming a set union of said one or more records of platform information to identify each unique platform.

44. The computer program product of Claim 43, wherein each of said one or more records of platform information includes software component data and system configuration data, and the computer program product further includes:

5 machine executable code for forming an initial union set that includes a first record of platform information;

machine executable code for determining for a second record of platform information if there are differences in system configuration data associated with said first and second records of platform information;

10 machine executable code for determining for said second record of platform information if there are differences in software component data associated with said first and second records of platform information; and

machine executable code for adding said second record of platform information to said initial union set if any differences are determined in system configuration data or software component data.

15 45. The computer program product of Claim 44, wherein said machine executable code for determining differences in software component data includes:

machine executable code for determining differences in named software modules associated with said first and second records of platform information; and

20 machine executable code for determining differences in attributes of a first named software module included in said first and second records of platform information.

46. The computer program product of Claim 29, wherein said data includes code coverage data associated with said each of said plurality of program executions, and the computer program product further includes:

5 machine executable code for determining one or more of said plurality of program executions having code coverage data;

machine executable code for determining a first record of platform information for which code coverage is being assessed;

10 machine executable code for performing a set intersection operation between said first record of platform information and said one or more records of platform information to form a resulting set of program executions associated with said set intersection operation, each program execution included in said set of one or more program executions corresponding to one of said one or more records of platform information that is similar to said first record of platform information; and

15 machine executable code for merging said code coverage data associated with each program execution included in said resulting set of program executions.

47. The computer program product of Claim 29, wherein said data includes code coverage data associated with said each of said plurality of program executions, and the  
20 computer program product further including:

machine executable code for determining one or more program executions having code coverage data;

machine executable code for determining first criteria;

machine executable code for determining a first portion of said plurality of  
program executions in accordance with said first criteria; and

machine executable code for merging said code coverage data associated with  
5 each program execution included in said first portion.

48. The computer program product of Claim 29, wherein each of said one or  
more records of platform information includes software component data and system  
configuration data, and the computer program product further includes:

10 machine executable code for identifying a version of a software module;

machine executable code for determining a portion of said plurality of program  
executions associated with said version of said software module using said each of said  
one or more records of platform information;

machine executable code for identifying first system configuration data associated  
15 with a first program execution included in said portion; and

machine executable code for identifying a computer system included in said first  
system configuration data.

49. The computer program product of Claim 29, further including:

20 machine executable code for determining a set of unique platform information  
that includes each record of platform information uniquely identifying a platform;

machine executable code for determining a target platform information record;  
and

machine executable code for determining a record included in said set of unique  
platform information that most closely matched said target platform information record.

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50. The computer program product of Claim 49, further comprising:

machine executable code for identifying a computer system included in said target  
platform information that matches one of said records included in said set of unique  
platform information.

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51. The computer program product of Claim 29, wherein one or more set of  
platform information are stored in an object-oriented database in accordance with a  
database schema.

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52. A computer program product for automatically tracking platform coverage  
comprising:

machine executable code for recording one or more records of platform  
information for a plurality of program executions, each of said one or more  
records of platform information corresponding to one of said plurality of program  
executions; and

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machine executable code for summarizing data related to said one or more records of platform information to assess the effectiveness of platform coverage.

5 53. The computer program product of Claim 52, wherein said data includes code coverage data associated with said each of said plurality of program executions, and further includes:

machine executable code for determining one or more program executions having code coverage data;

10 machine executable code for determining a first record of platform information for which code coverage is being assessed;

machine executable code for performing a set intersection operation between said first record of platform information and said one or more records of platform information to form a resulting set of program executions, each program execution included in said set of one or more program executions corresponding to one of said one or more records of platform information that is similar to said first record of platform information; and

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machine executable code for merging said code coverage data associated with each program execution included in said resulting set of program executions.

20 54. The computer program product of Claim 52, wherein said data includes code coverage data associated with said each of said plurality of program executions, and further includes:

machine executable code for determining one or more program executions having code coverage data;

machine executable code for determining first criteria;

5 machine executable code for determining a first portion of said plurality of program executions in accordance with said first criteria; and

machine executable code for merging said code coverage data associated with said each program execution included in said first portion.

55. The computer program product of Claim 52, further including:

10 machine executable code for recording a one or more records of platform information corresponding to a bug report; and

machine executable code for identifying a first of said one or more records of platform information for a plurality of program executions wherein said first record identifies a platform that corresponds to a platform associated with said bug report.